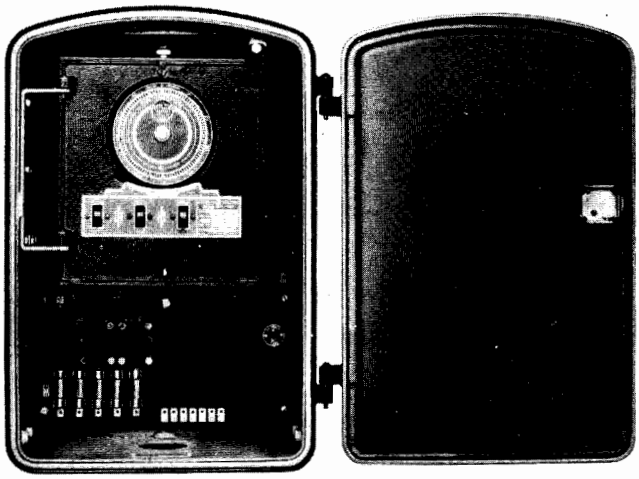
TRAFFIC CONTROLLER

GENERAL ELECTRIC

48-13

Instructions

Type D
Traffic Signal Timer



GENERAL ELECTRIC

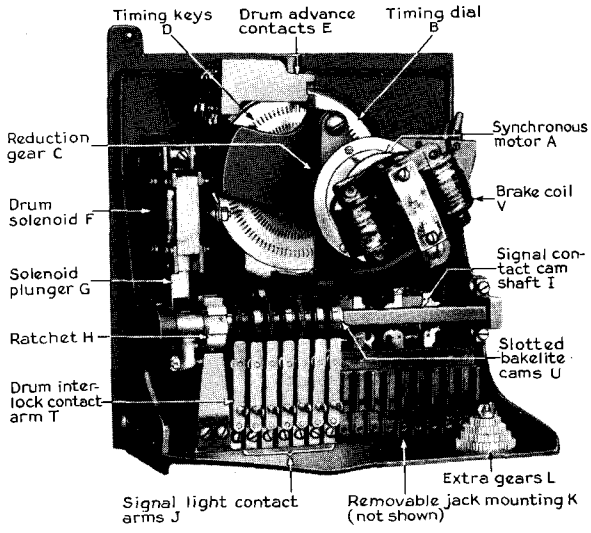


Fig. 1. Timer Element of Type D Traffic Signal Timer Removed from Case

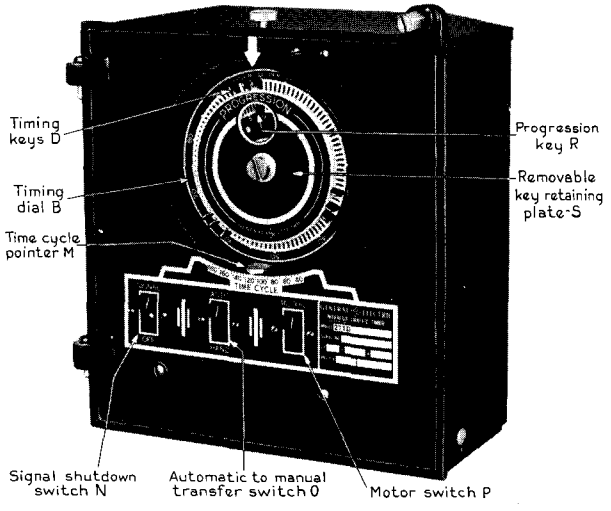


Fig. 2. Timer Element of Type D Traffic Signal Timer

48-13

Schenectady, June 25, 1948

Mr. Carl Brown
Manager of Manufacturing
Lighting Division
River Works
Lynn

Subject: Value Analysis Traffic Control Parts

Dear Carl:

Herewith are pertinent data combining ideas and appraisals of all of the group in our mutual endeavor to secure the ultimate in value in the parts of our controller.

Those who participated in this study are:

Carl Brown	Vince Leonard	Dex Rich
W. T. O'Brien	J. W. Strout	F. D. Nicol
Len Lindsay	Charles Wiler	L. D. Miles
Ed Forsythe	Stan Richards	Also members of the Screw Machine and Punch Press Divisions

Quotations were secured in cooperation with your purchasing section--Francis Buckley has all of them and a copy of this report. More quotations are coming in.

We have included space under proper headings for the future use of your people as you requested.

Excepting for a few specific investigations, our work is substantially complete. All information will be provided to Ed Forsythe.

We have welcomed this opportunity to assist in your cost reduction program and have been inspired by the enthusiasm of your committee.

L. D. Miles

VALUE ANALYSIS DIVISION
PURCHASING DEPARTMENT

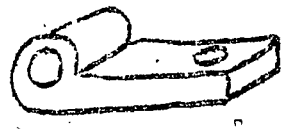
LDMilos:aem

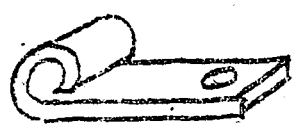
June 23, 1948

48-13

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Hinge
8479415-1
4 used per unit





	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$3.55	$3.59	$27.74
Bogy			10.00

COMMENTS:

1) Use standard hinge.

2) Fabricate a hinge from 1/8" steel by punching and forming.

3) Quotations now being obtained as a punching.

4) One supplier quotes on sheet metal hinge as per above sketch the following prices:

Lots	Cost/C
200	$5.38
500	4.98
1000	4.68

Tool charge - $113

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

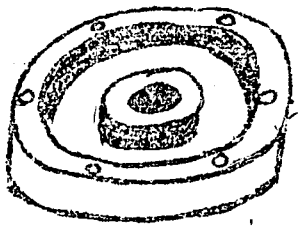
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Hub
4865560-1
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$11.17	$17.27	$126.59
Bogy			35.00

COMMENTS:

The function of this hub is to rigidly mount and separate the two dials and provide a center support. A number of possibilitie were suggested:

1) Provide an aluminum hub made by blanking and flattening a disc of aluminum from plate. Such blank would cost between 8 and 10¢; providing the necessary holes would cost from 10 to 15¢, giving a completed cost of around 20¢. By altering the spring which fits into the hub slightly it would, we were advised, become unnecessary to undercut the material.

(Continued)

Flatness 1.00
Buy Standard Aluminum Disc 4.00/c
Drill 8.00
12.00 k
13.00/c

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

HUB (Cont.)

2) Make the back dial in the form of a punching with an extruded hole in the center for support onto the shaft. Cut a section from tubing or pipe for the spacer.

3) Because the cost of assembly varies directly with the number of rivets, check to determine if it is still felt necessary to provide six rivets with all of the necessary holes to make this assembly suitably rigid.

4) One supplier quotes on the part made according to drawing:

Lots	Cost
200	$164.19
500	104.68
1000	84.84

No tool charge

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Drum Shaft
K-8479425
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$2.84	$15.77	$107.06
Bogy		immediate	35.00
		ultimate	20.00

COMMENTS:

This shaft which uses 3¢ worth of steel and ends up costing $1.07 is too high. Among methods which were suggested to secure value are:

1) Secure better prices on the operations.
2) Make by inserting a centerless ground shaft into a square tubing.
3) Make of round tubing or rod formed with a continuous key-groove therein.
4) Watch ordering quantities closely.
5) It was suggested that changing the turned diameter to a tolerance of ± .001 inches and from F-4 to F-5 finish would decrease cost and, since there is considerable of clearance in the bearing fit, this should be seriously considered.

One outside supplier quotes 500 pieces at 35½¢ each, 1000 pieces at 20½¢, 1500 pieces at 18¢. (Continued)

EXPECTED EFFECTIVE DATE: Buying $15.00/C

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Drum Shaft (Continued)

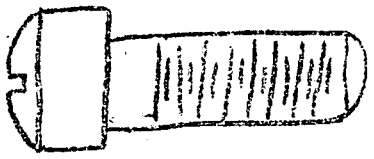
6) Another vendor quotes the following prices:

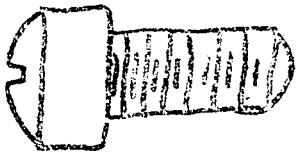
Lots	Cost
200	$28.24
500	17.85
1000	14.34

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Pivot Screw
K-9452335
1 used per unit





	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.40	$5.47	$36.47
Bogy		immediate	10.00
		ultimate	.50

COMMENTS:

1) Obtain better value in the purchase of screws of the present design. Quotations being obtained.

2) Select a standard shoulder screw which will provide the necessary precision of mounting but avoid a special part.

3) Make the screws shorter. This, also, will reduce drilling and tapping labor on the castings.

4) Use the standard screw which is utilized at the bottom of the same assembly and which costs ½¢.

5) There are so many mounting factors involved that it seems likely that the finer degree of precision afforded by using

(continued)

EXPECTED EFFECTIVE DATE: Buy For 6.00/c

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Pivot Screw (Continued)

the 36¢ screw instead of the ½¢ screw may be more than lost in other joints and members. Although time prevented a thorough study of it, it would seem that probably some tapping or bending may be necessary at the time of assembly in order to produce proper set of the gears when the indicator is in the slot and this may be of such a degree that the small gain resulting from the shoulder screw is largely off-set.

6) If it is found necessary to use similar appearing screws which are, in fact, different, for the top and bottom of the plate assembly, it is suggested that one or the other be given a black or colored finish or otherwise made to appear differently to avoid erroneous assembly.

7) One supplier quotes the following prices:

Lots	Cost
200	$21.04
500	9.95
1000	6.25

8) Another supplier quotes the following prices:

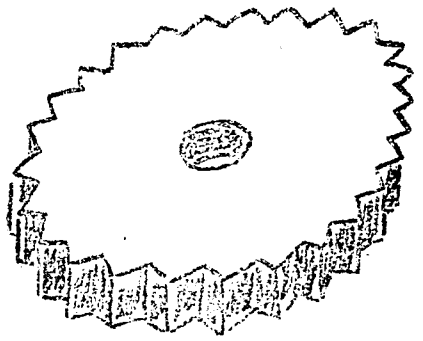
Lots	Cost
200	$11.50
500	9.36
1000	5.98

Tool Charge - $34.50

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Flasher Cam
8978202
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$127.73		$148.17
Bogy			15.00

COMMENTS:

1) The cost of $1.48 was based upon a lot of 13. We were advised that a quotation was on file at 35¢ each in quantities of 100 or over.

2) It is expected that the price to be achieved by careful ordering and scheduling this part is in the neighborhood of 15¢. The plastic department is investigating it. If problems come up in connection with it, they will need to be ironed out.

(continued)

FINAL RESULTS NOT KNOWN

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

FLASHER CAM (Cont.)

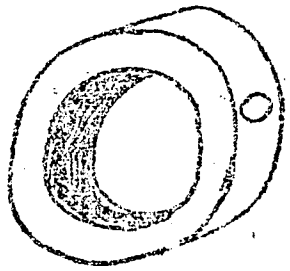
3) The desirability of having the cam assembled to the pinion by the plastics supplier is being investigated. Many of these crack at assembly when the pinion is pressed into the plastic. This assembly in the suppliers plant would tend to lessen breakage difficulty because he would detect difficulties promptly.

4) Quotations being obtained on having the pinion molded in the cam as an insert.

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Collar
K-8479480
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.36	$5.39	$35.88
Bogy		immediate	15.00
		ultimate	10.00

COMMENTS:

There are numerous possibilities for getting better value on this small collar which uses 1/3¢ worth of steel and comes up at a cost of 35¢.

1) Make of pipe or tubing. A sample pipe from which such samples were being made had a very rough exterior. Provide an inexpensive way for suitably cleaning the exterior. This might be tumbled, or a rotary sand blast or a chemical etch or some other economical arrangement requiring little individual handling. Perhaps a light cut on the O. D. when it is in the screw machine would be the cheapest method of cleaning the surface.

2) Check present costs of operations and ordering quantities very closely and achieve better value on present design.

(continued)

EXPECTED EFFECTIVE DATE: Buy Standard @ 2.00/C Collar

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

COLLAR (Cont.)

3) One supplier quotes the following prices:

Lots	Cost
200	$19.32
500	9.97
1000	6.85

4) The Illsco Company in Cincinnati, Ohio quotes on furnishing a part as per sketch for the following prices:

Lots	Cost
1000	$2.14/C
2500	1.88

Tool Charge - $15.00

One sample has been received and is being forwarded to Mr. Forsythe.

5) Another supplier quotes the following prices:

Lots	Cost
200	$10.20
500	7.32
1000	6.36

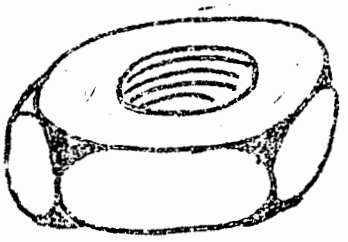
Tool Charge - $12.00

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Shaft Nut
K-8978084-1
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.13	$2.79	$18.50
Bogy			.50



COMMENTS:

1) The standard jam nut is just slightly (apparently about 1/32") too broad across the corners and on some assemblies might interfere when the smallest gear is used. Some slight modification of the assembly for the parts should be made so that the standard ½¢ nut could be used in lieu of the special 18½¢ one.

2) Possibly some large hardware supplier stocks a special nut that would serve as well.

Using $.50/c Std. Nut

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

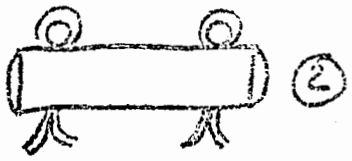
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1943

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Stud
5550358
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present Bogy	$.26	$6.23	$41.30
		immediate	$20.00
		ultimate	15.00

COMMENTS:

A number of ideas were suggested:

1) More competitive pricing of the stud as it is now designed.

2) A simplified construction such as a straight pin with a cotter key in each end but with an end fastener which prevents the pin from rotating in the armature.

3) A pin having fluting or similar under-the-head flaring for a short distance to prevent turning.

4) A construction in which one of the armature strips is formed outward and a cotter key goes through both the pin and a hole in the strap to prevent turning.

(continued)

EXPECTED EFFECTIVE DATE:

Buy for # 6.00/c

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Stud (Continued)

5) There are numerous other possibilities which could not be discussed in the allotted time. Although the ultimate bogy is listed as 15¢, it is felt that the group will provide a simpler construction which will ultimately not cost more than 2 or 3¢.

6) One supplier quotes the following prices:

Lots	Cost
200	$32.28
500	14.95
1000	9.18

7) Another supplier quotes the following prices:

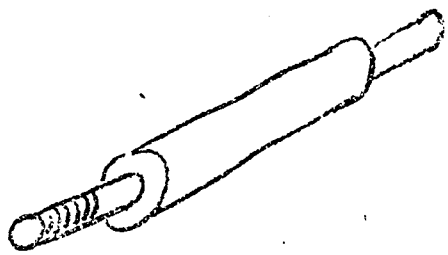
Lots	Cost
200	$10.20
500	6.24
1000	4.92

Tool Charge $25.20

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Shaft
5551631
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.45	$5.06	$33.82
Bogy			~~15.00~~

COMMENTS:

1) Study the cost of operations in making this shaft and examine any tolerances which increase cost.

2) Check ordering quantities carefully and provide from suitable supplier if reasonably similar value cannot be secured locally. Quotation being obtained.

3) One supplier quotes the following prices:

Lots	Cost
200	$35.50
500	16.93
1000	10.73

Buy to = 11.00 ℄

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

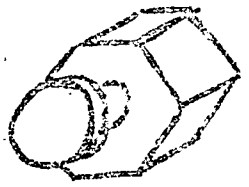
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Stud
V-8462616
None used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.46	$4.73	$31.74
Bogy			15.00



COMMENTS:

1) This stud is not used on this model. Delete it from the assembly drawings and the cost make-up.

2) Quotations being obtained as price now is high.

3) Engineers to consider design modifications to reduce costs on other models.

4) One supplier quotes the following prices:

Lots	Cost
200	$28.49
500	13.88
1000	8.99

(continued)

EXPECTED EFFECTIVE DATE: Buy for 7.00/C

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

STUD (Cont.)

5) Another supplier quotes the following prices:

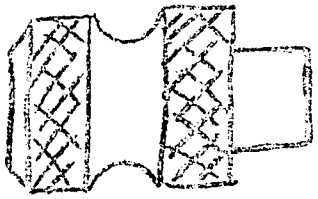
Lots	Cost
200	$12.02
500	8.12
1000	6.82

Tool Charge - $23.00

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Dial Cover Nut
8978729
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$1.88	$6.58	$45.48
Bogy		immediate	20.00
		ultimate	15.00

COMMENTS:

The present cost is judged to be at least three times as high as it should be considering the function it has to perform.

1) The elements of cost in the present design are being reviewed. The Screw Machine Department advised that if our drawings were issued stating "Don't drill through" and advising tap size rather than to specifically mention the depth of hole, some economies could be effected. It is believed that the present supplier will arrive at a substantially lower cost and that he will suggest certain alternates which are reasonable and which reduce cost. Elimination of the undercutting would simplify present design.

(continued)

Buy for Tool

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

DIAL COVER NUT (Cont.)

2) It was suggested that cost would be further reduced if the hole were drilled clear through and that a suitable design embodying such construction might be provided.

3) It was further suggested that a part in the nature of an acorn nut providing the necessary shoulder and flaring might be provided. An effort should be made to locate such suitable material as standard parts on the market.

4) One supplier quotes the following prices:

Lots	Cost
200	$20.22
500	13.88
1000	8.42

5) Another supplier quotes the following prices:

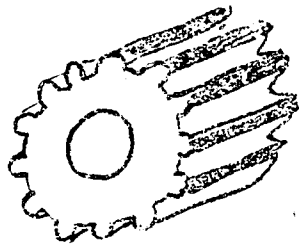
Lots	Cost
200	$10.35
500	7.24
1000	6.21

Tool Charge - $20.70

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Pinion
9437399-1
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$56.07		$65.04
Bogy			45.00

COMMENTS:

1) The factors entering cost are being reviewed.

2) Quotations are being secured from appropriate suppliers.

3) One supplier quotes the following prices:

Lots	Cost
	(Cadmium Plated)
200	$81.13
500	40.61
1000	25.03

(Continued)

EXPECTED EFFECTIVE DATE: Buy the 15.0 ¢

RECORD OF ACTUAL COST DECREASES

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

PINION (Cont.)

4) Another supplier quotes the following prices:

Lots	Cost
200	$29.99
500	18.56
1000	14.71

Tool Charge - $25

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Shaft
8987608-1
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$1.26	$13.61	$91.02
Bogy			40.00

COMMENTS:

1) The tolerances and cost of operations of this drill rod shaft are being reviewed with the present supplier.

2) Quotations have been requested from other appropriate suppliers of this class of material and parts should be so ordered unless reasonably competitive value can be secured locally.

3) One supplier quotes the following prices:

Lots	Cost
200	$69.37
500	51.34
1000	44.48

(continued)

EXPECTED EFFECTIVE DATE: Buy for #30.00/c

RECORD OF ACTUAL COST DECREASES

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

4) Another supplier quotes the following prices:

Lots	Cost
200	$49.45
500	35.88
1000	29.44

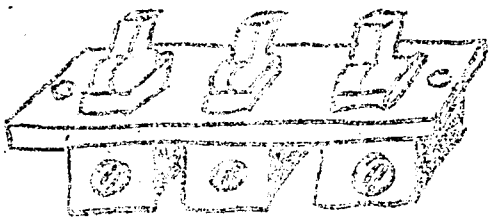
Tool Charge - $5.75

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Switch and Strap Assembly
8979564GR-1
1 used per unit

	Cost/C			
	Mat'l	Labor	Shop Cost	
Present	$84.28	$5.40	$133.30	
Bogy			100.00	



COMMENTS:

The majority of the production uses this assembly of three switches and a strap. They are now purchased separately from the same company for $84.28 per set and, after assembly including the 16% addition to material cost, the cost becomes $1.33. The present supplier will provide the assembly ready to use for 86¢ which gives a shop cost of $1. Arrangements should be made for special handling on the few switches of differing styles which are occasionally required. Quotations have been received.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

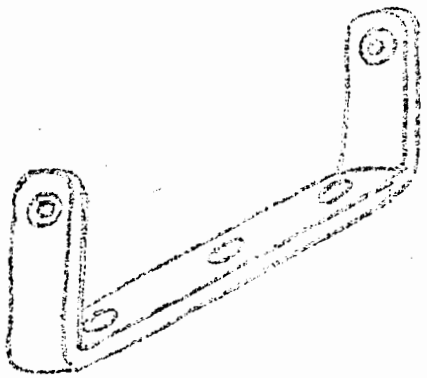
IF NOT ADOPTED - Why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Hinge
V-5552478
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$3.72	$6.14	$48.72
Bogy			15.00

COMMENTS:

A study of the up-to-date planning of this hinge disclosed the following:

Operation	Cost/C Flat Labor		Shop Cost	
Shear	.16		1.05	
Cut two Radii	.36		2.37	
Punch two .193 holes	.36		2.37	
Punch three oval holes	.51		3.35	
Counter sink	.35		2.30	
Flat drop	.40		2.63	
Trim (round) two ends	.40		2.63	
Sub total		2.54		16.70
Set (straighten) two ends	1.88		12.40	
Sub total		4.42		29.10
Plate	.25		1.64	
TOTAL		4.67		30.74

(cont.)

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

<u>HINGE</u> (Cont.)

1) Omit the center oval support hole which will reduce cost about \$1.04/C plus omit drilling and tapping of box.

2) Change tolerance of distance between ends to ± 1/32 inch which will eliminate the "set two ends" operation at \$12.40/C. Part is hand and hammer adjusted at final assembly as it is now.

3) If internal costs are not reasonably competitive, purchase from standard supplier of such parts. ~~[illegible] will supply [illegible]~~ (designs and information concerning double and single radius cut-off dies which Schenectady uses to great advantage *will be supplied.*)

4) One supplier quotes the following prices:

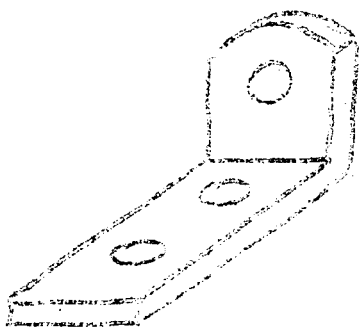
Lots	Cost
200	\$25.20
500	22.50
1000	19.70

Tool Charge - \$130

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Bracket
V-5551255
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.64	$2.59	$17.79
Bogy			10.00

COMMENTS:

This bracket is now made in the Punch Press Department and, due to its special width, stock must be sheared for it.

1) Change the width and thickness of the material slightly and make from the same bar which is used in hinge drawing #5552478.

2) The rounded end provides extra cost. However, with present construction, there is not room for a square end. Study the part and its mounting carefully to determine if minor changes can be made which will allow a square cut-off.

3) Check cost of operations and determine whether this simple item should be manufactured or provided as a purchase part from a bracket manufacturer. Quotations have been requested

(Continued)

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Bracket (Continued)

4) One supplier quotes the following prices:

Lots	Cost
200	$14.60
500	13.40
1000	10.30

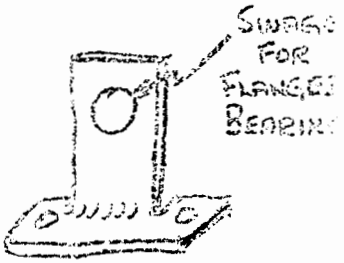
Tool Charge - $63

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Bearing Block
5550565
2 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$12.35	$7.68	$64.86
Bogy			15.00



COMMENTS:

A number of possibilities for reducing the 65¢ cost of this block were discussed.

1) Group orders as much as possible and order the entire part made from porous bronze or iron material.

2) Make a small rather simple stamping with a swaged hole which would mount a flanged oilite bearing and in turn provide mounting onto the frame. (This would be somewhat similar to the simple bracket at the end of the conventional window shade.) Quotations are being requested.

3) Examine the possibility of using Carnegie Illinois Steel Company sliding nut section M3262 in lieu of the present cast bearing. Small quantities might possibly be secured from a company using the section.

(continued)

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

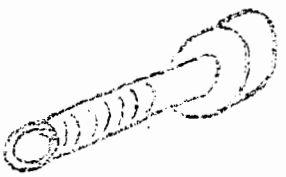
BEARING BLOCK (Continued)

4) Cast more of the support in the frame and use a smaller bearing block.

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Contact Screw
8479988
8 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.97	$1.20	$9.02
Bogy	immediate		5.00
	ultimate		2.00

COMMENTS:

1) It was suggested that a standard filister head or round head or flat head screw be used but that it be taken from the machine before slotting.

2) It was also suggested that possibly the slot would not be disadvantageous and that the standard slotted screw could be used. This would have a decided advantage at assembly since it is now very difficult to prevent this contact from rotating during assembly. (Continued)

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Contact Screw (Continued)

3) One supplier quotes the following prices:

Lots	Cost
(Made according to Drg.)	
1500	$4.02
3000	2.95
5000	2.56
(Made from brass)	
1500	$3.47
3000	2.51
5000	2.13

4) Another supplier quotes the following prices:

Lots	Cost
1500	$2.40
3000	2.09
5000	1.97

Tool Charge - $11.50

June 23, 1943

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Spring
3778832
4 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$2.00		$2.32
Bogy			1.25

COMMENTS:

1) In the quantities used for this job, a suitable purchase price for this type of spring would not exceed $1 per hundred.

2) If such quotations are not forthcoming, request one or two reliable vendors to suggest low cost springs for the consideration of our engineers.

3) Quotations are being obtained.

(continued)

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Spring (Continued)

4) One quotation received is as follows:

Quantity	Stainless	Music Wire Cadmium Plated	Music Wire Blk. Enameled
500	$3.25/C	$3.10/C	$3.00/C
1000	1.725	1.71	1.65
2000	.925	.9	.75
5000	.525	.5	.475

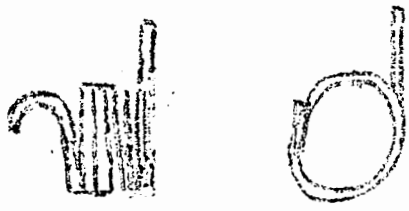
5) Another quotation received is as follows:

Quantity	Stainless	Music Wire Cadmium Plated	Music Wire Blk. Enameled
500	$1.32/C	$.975/C	$.695/C
1000	.7	.525	.39
2000	.395	.325	.24
5000	.215	.20	.15

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Spring
3778618
1 used per unit



	Cost per C		
	Mat'l	Labor	Shop Cost
Present	$9.02		$10.46
Bogy			$5.00

COMMENTS:

1) This spring costs about double its considered value. Ordering quantities should be carefully chosen and purchasing work will be necessary.

2) Quotations are being requested.

3) One quotation received is as follows:

Quantity	Stainless	Music Wire
200	$97./M	$96.20/M
500	48.00	47.15
1000	31.70	30.90
2000	23.55	22.75

(Continued)

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

SPRING (Cont.)

4) Another quotation received is as follows:

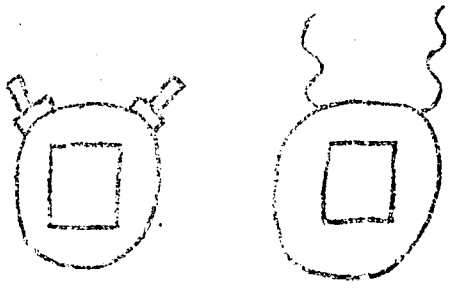
Quantity	Stainless	Music Wire
200	$62.21/M	$71.48/M
500	35.59	38.75
1000	26.71	27.81
2000	22.29	22.35

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Coil
22D3G174
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$114.69		$133.04
Bogy			$100.00



COMMENTS:

The terminal construction of this coil requires many special parts. A more standard construction should be investigated.

1) It was suggested that the supplier be requested to use his standard.

2) Quotations are being secured upon this coil and the supplier is being requested to suggest his most standard arrangement.

3) The possibility of having leads rather than terminals should be investigated as coil costs would be much less.

4) Quotations have been received on this coil with 12" leads rather than per terminal assemblies. They are:

Lots	One Vendor	Other Vendor
1000	51¢	47¢
500	51½¢	50¢
200	53¢	55¢
100	56¢	60¢

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

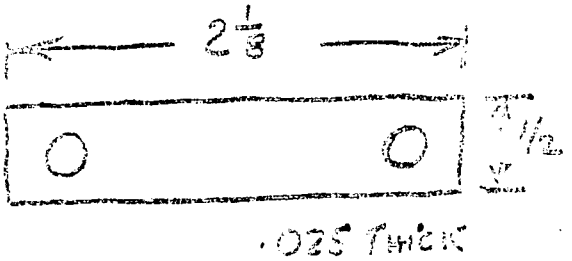
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Lock Spacer
V-2378526
2 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.04	$.77	$5.11
Bogy			$3.00

COMMENTS:

Ordering quantities should be carefully selected and the costs of the operations on this spacer reviewed. Quotations are being requested.

One supplier quotes the following prices:

Lots	Cost
400	$2.63
1000	1.63
2000	1.43

Tool Charge - $53

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Gears
4865558-5-8-11-14-18
1 set used per unit

See attached tabulation.

COMMENTS:

1) Our present supplier, the Vinco Corporation, is using a new high-speed method for grinding gears. Aluminum gears are produced at costs which are often below the cost of the usual brass gear. For this job, they have quoted prices from 2½¢ to 5¢ per gear less than the cost of the brass. It is understood that some samples have been submitted and this matter is up for engineering decision.

2) Quotations have been obtained. They are listed on attached sheet.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

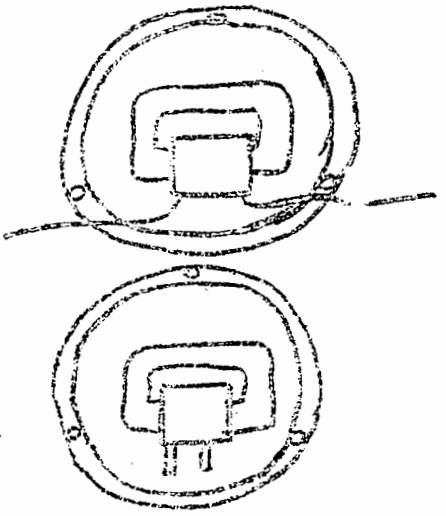
Gears (Continued)

Drawing	Present Cost	Quotations on Ground Aluminum Gears Quan. 200	Quan. 500	Quan. 1000
4865558 P-5	12¢	11.4¢	9.6¢	8.5¢
4865558 P-8	15.1	14.6	12.	11.
4865558 P-11	15.	15.6	13.	12.
4865558 P-14	22.1	19.6	17.	16.
4865558 P-18	26.1	24.1	21.4	20.5

3) Quotations on brass gears for the various quantities are also being obtained.

June 23, 1943

TRAFFIC CONTROLLER PARTS COST ANALYSIS



Motor
4865679-5
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$608.		$705.00
Bogy			667.00

COMMENTS:

1) The Warren Telechron Company advises that if, instead of special construction which we specify in which two wires are brought out of the coil, we allow them to use their standard construction which has two lugs on the side of the coil, the purchase price of the motor can be reduced 33¢. Preliminary discussion indicated that it might even be advantageous to us to use lugs rather than the present special wire from an assembly viewpoint.

2) A sample with proposed terminals should be secured for Mr. Lindsey.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

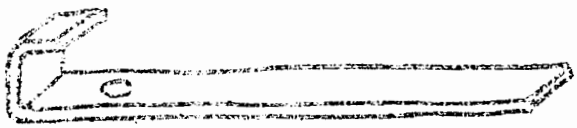
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Arm
5550315
2 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.43	$1.17	$8.20

COMMENTS:

One supplier quotes the following prices:

Lots	Cost
400	$5.60
1000	4.20
2000	3.60

Tool Charge - $33.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Plate
8404556
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.04	$.80	$5.31
Bogy			3.00

COMMENTS:

1) Check ordering quantities and operations of this very simple punching and provide it from outside supplier unless it can be made at reasonably competitive figures locally.

2) Quotations being obtained.

3) Possibly cadmium plating alone without oxidizing would suffice.

4) One supplier quotes the following prices:

Lots	Cost
200	$4.20
500	2.35
1000	1.75

Tool Charge - $56

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Wing Nut
8479573
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$1.35		$1.57
Bogy			.50

COMMENTS:

Use a standard steel wing nut to hold the spare gears in place.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

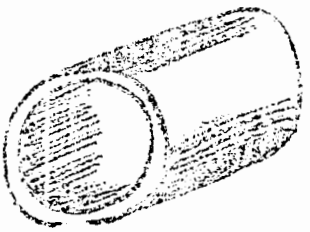
IF NOT ADOPTED - Why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Oilite Bearing
8979047-1
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$3.56	$1.00	$10.71
Bogy			3.50

COMMENTS:

An oilite bearing 1" long is now purchased and labor is expended to cut it down to 1/32" over 3/4". A slight adjustment should be made in the arrangement of mounting so that the standard 3/4" bearing could be used without further fabrication. The total cost will then be reduced from approximately 10¢ to something less than 3½¢.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

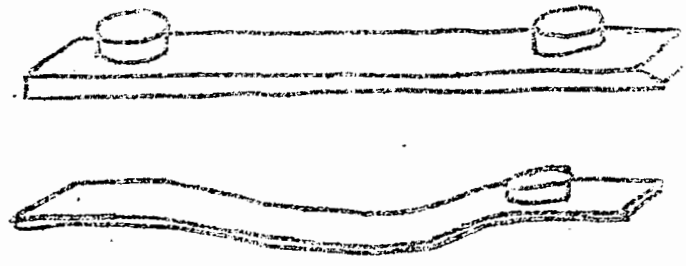
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Contact Assembly
9437386GR-7



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$10.83	$2.18	$26.91
Bogy		immediate	15.00
		ultimate	8.00

COMMENTS:

1) As listed under the previous item, it is suggested that this part be made of beryllium copper of suitable size to conduct the necessary current and also provide the desirable tip pressure. A number of possibilities exist but the possibility of securing pre-formed beryllium copper with the tip assembled if desired, seems much more worthwhile than other partial measures. The beryllium copper contacts would be form heat-treated, would be the proper shape for assembly, and would require no adjustment. Preliminary samples were provided to Mr. Lindsey.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

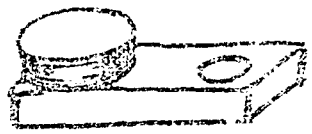
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Contact Assembly (Hinge Block)
9437386GR-8
16 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$5.40	$1.45	$15.81
Bogy		immediate	9.00
		ultimate	omit

COMMENTS:

1) This part will be eliminated entirely if the beryllium copper assemblies are adopted.

2) This part contains about 5¢ worth of silver. If it is retained, the amount of silver on it should be reduced to about the requirements for use. Since this is on the inactive end of the contact bar, the silver disintegration will be very much less than that on the active end.

3) A bi-metal tip embodying a thinner coat of silver can be assembled to the terminal.

4) The assembly can be produced by continuously rolling or brazing bi-metal onto a brass strip after which fabrication is completed.

It is now believed that the ultimate on this will be about 5¢ if the part is retained.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

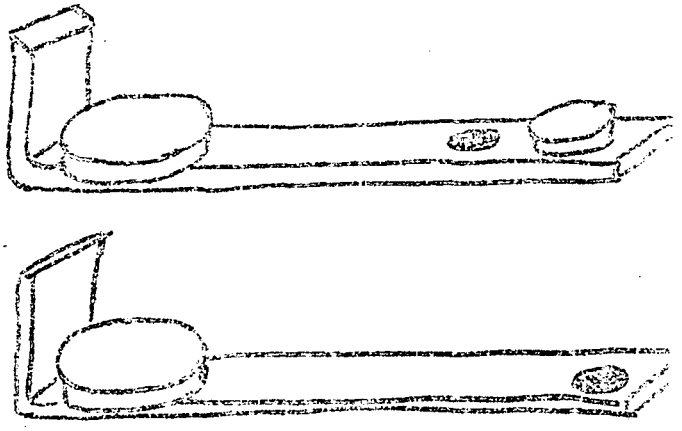
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Flasher Contact Assembly
9437386GR-9
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$17.77	$5.07	$53.97
Bogy		immediate	30.00
		ultimate	20.00

COMMENTS:

It was proposed that this part be made of beryllium copper which would eliminate the necessity for the 5¢ silver contact on the inactive end and eliminate the necessity for the 15¢ hinge block which is the previous item. If it is desirable, the beryllium copper could be chromium plated to increase its wear resistance at the point of contact with the flasher cam. Beryllium copper parts are readily formed in long slightly attached strings for convenience in plating.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Lower Flasher Contact Assembly
9437386GR-10
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$11.82	$1.13	$21.15
Bogy			18.00

COMMENTS:

1) Careful study and pricing of the operations necessary to manufacture this assembly should bring it within the value range not exceeding 18¢.

2) Quotations being obtained on having this part furnished completed with welded top.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

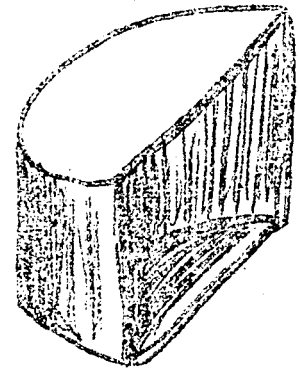
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Welded Cover Assembly
9437529GR-1
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$40.86	$56.65	$420.15
Bogy		immediate	200.00
		ultimate	0.

COMMENTS:

1) It was suggested that this cover be eliminated entirely from regular production and supplied as an extra to those who wish it. This will have engineering and commercial consideration.

2) Meanwhile, effort is progressing to provide the present cover at lower cost if and when it is required. The cover is composed of three parts. The contributing department supplier of this cover is studying all details of cost and will suggest a lesser number of welded spots and all other features which will lower cost, for the engineers' consideration.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Dial Cover Name Plate
NP-66145
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$26.47		$30.71
Bogy			25.00

COMMENTS:

1) Some economies could be effected by changing from etched to lithographed plates. It is believed that the difference will be imperceptible at a short distance. The name plate in the bottom of the box is now lithographed.

2) Due to excessive set up charges, ordering quantities should be reviewed carefully. $10 - $15 setup is charged regardless of quantity. It is suggested that, in the case of all the nameplates, orders be placed semi-annually to obtain reasonable prices. For example, costs of this part are as shown on the following page.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Dial Cover Name Plate (Continued)

	Cost Now	Lots 100	Lots 200	Lots 500	Lots 1000
NP66145					
Etched	26.47	40.81	33.31	28.81	27.06
Litho.		31.82	24.32	19.82	18.07

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Dial Contact Block Rider
5550316
4 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$8.60		$9.98
Bogy			6.00

COMMENTS:

1) Quotations are being obtained on having this supplied complete by one of the General Electric divisions set up to handle machining of textolite.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

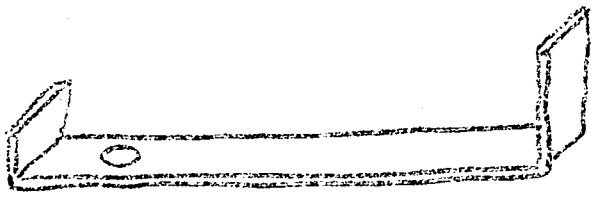
IF NOT ADOPTED - why and bywhom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Arm
5550319
2 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.36	$.91	$6.41

COMMENTS:

One supplier quotes the following prices:

Lots	Cost
400	$5.55
1000	4.15
2000	3.55

Tool Charge - $35

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

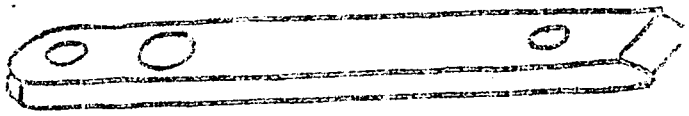
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Arm
5550363
7 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.35	$.45	$3.37

COMMENTS:

One supplier quotes the following prices:

Lots	Cost
2000	$1.90
5000	1.65
10000	1.40

Tool Charge - $57

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

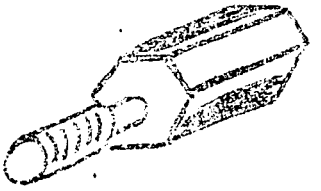
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Mounting Screw
5550396
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.51	$.56	$4.28



COMMENTS:

If the above shop costs are correct, a good planning job has been done. Should they prove to be wrong, supplier quotes the following prices for this part:

Lots	Cost
200	$30.34
500	14.67
1000	9.49

Another supplier quotes the following prices:

Lots	Cost
200	$10.20
500	7.25
1000	6.10

Tool Charge - $28.75

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

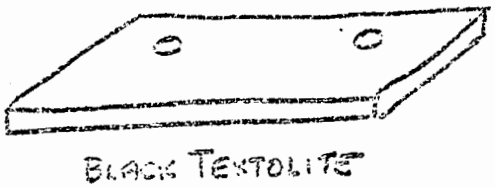
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Side Plate
5551200
2 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$4.00		$4.64
Bogy			3.00



COMMENTS:

1) Obtain this plate in suitable quantities from an appropriate unit of the General Electric Company that specializes in plastic parts fabrication. Quotations are being requested.

2) Check present operations and determine what is required to provide lower cost.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

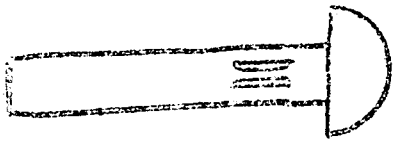
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Hinge Pin
5551349
2 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$2.78		$3.22
Bogy			2.00



COMMENTS:

1) Review ordering lots and planning to obtain proper costs.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

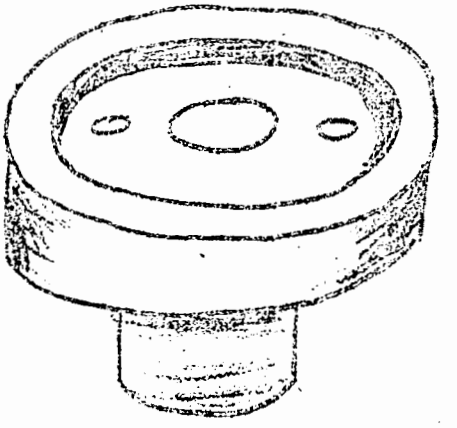
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Knob
5551627
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$13.30	$.30	$17.40
Bogy			13.00

COMMENTS:

In the quantities used, it is believed that a careful review of ordering quantities and of specifications will result in a cost not to exceed 13¢, complete with holes tapped ready to use.

Quotations being requested.

Another suggestion would be the use of drive screws to mount the nameplate rather than standard screws and tapping of the knob itself. This could also apply to the nameplate on the controller box.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

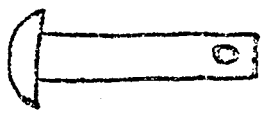
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Spring Contact
5551629
4 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.36	$.47	$3.51
Bogy			2.00

COMMENTS:

1) Provide either a more suitable fixture for drilling the transverse hole through the copper rivets or procure from a supplier properly set up to economically supply them.

2) Quotation being obtained.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

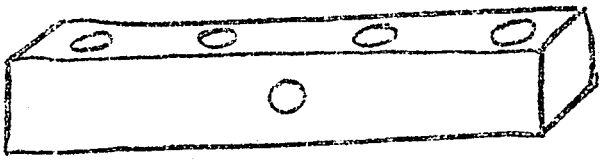
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Bar
5551630
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$13.56		$15.73
Bogy			11.00

COMMENTS:

1) Secure from General Electric Unit properly tooled to provide plastic materials at competitive costs.

2) Quotations being obtained.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

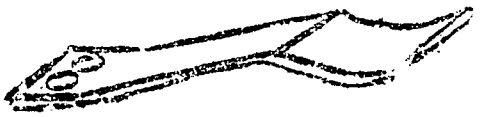
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Latch
8479416
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.51	$.67	$5.00
Bogy			3.00

COMMENTS:

1) Quotations being obtained from outside suppliers for lower cost.

2) Present planning should be checked for possible improvement.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

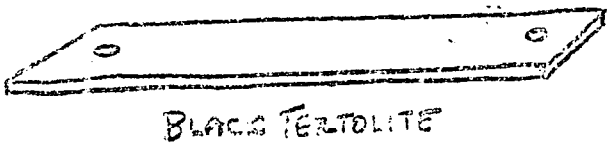
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Cover
K-8479422
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$9.15		$10.61
Bogy			5.00



COMMENTS:

Provide from General Electric divisions specifically set up for fabricating plastic items unless approximately similar value can be secured locally. Quotations have been requested.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

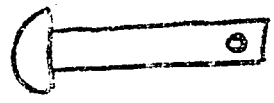
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Hinge Pin
K-8479439
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.16	$.655	$4.45
Bogyy			2.00

COMMENTS:

1) This steel rivet costs less than ¼¢ but after drilling the transverse hole its cost is increased to 4½¢. Check cost of operations and unless reasonably competitive value can be provided, secure from specialties companies properly set up for this small item.

2) Quotations being obtained.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

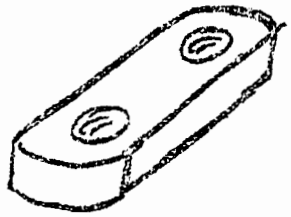
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Terminal Block
8479872
22 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.45	$.564	$4.23
Bogy			3.00



COMMENTS:

Work is in progress which will provide these terminal blocks from strip aluminum.

1) One supplier quotes the following:
Made from 2S half-hard aluminum

Lots	Cost
5000	$1.30/C
10000	1.25
20000	1.20

No counter sinking prior to tapping Tool Charge - $230.

Having the holes counter sunk on one face prior to tapping, the above prices would be the same but the tool charge would increase to $250.00

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

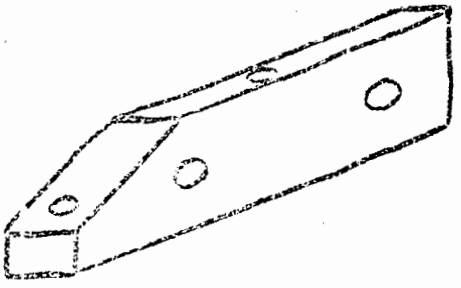
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Block
K-8479984
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$18.00		$20.88
Bogy			15.00

COMMENTS:

Secure this block from General Electric units particularly skilled in fabricating plastic items. Quotations have been requested.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

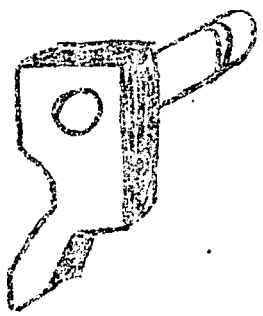
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Pawl & Shaft Assembly
8978474GR-1
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$.90	$11.27	$75.20
Bogy			50.00

COMMENTS:

1) Check the costs of operations and the tolerances on each of these parts.

2) The knurl was discussed to some length. Question raised was whether the knurl served a useful purpose since it was forced into a hardened hole and the part then riveted in place.

3) Quotations being obtained on purchasing this item complete

4) One supplier quotes as follows:

Lots	Cost
500	.598¢ ea.
1000	.542¢ ea.

Tool Charge - $600

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

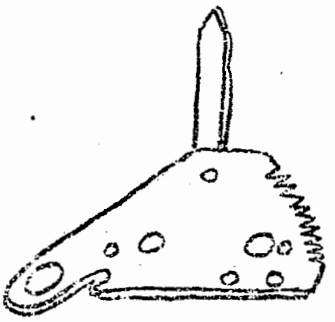
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Motor Plate Asm
8979358GR-1
1 used per unit



	Cost/C		
	Met'l	Labor	Shop Cost
Present	$4.90	$26.58	$180.58
Bogy			$80.00

COMMENTS:

1) These steel parts are now copper plated, then chemically blackened and lacquered after blacking. Two processes for chemically blackening steel directly are being investigated. They are the "Black Magic" process by the Mitchell-Bradford Chemical Company in Bridgeport and the "Houghto-Black" by E. F. Houghton and Company at Philadelphia. These new processes could apply to all the parts on this controller that require black oxidizing.

2) The cost of all operations on this back plate should be carefully reviewed. A finished cost of the back plate alone of approximately 75¢ is considered appropriate in the quantities used.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

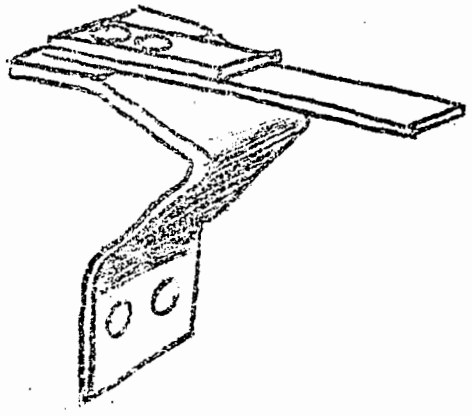
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Stop Spring Assembly
8979661GR-1
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$48.03		$55.71
Bogy			40.00

COMMENTS:

1) To secure better value on this part, purchasing work is indicated. Quotations are being obtained.

2) Ordering quantities should be carefully checked.

3) Quotations have been received from two suppliers. They are as follows:

Lots	Cost	
500	12¢ ea.	
1000	9¢ ea.	Tool Charge - $650

Lots	Cost	
500 or 1000	30¢ ea.	Tool Charge - $124

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Panel
8987662-2
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$145.90	$9.00	$228.46
Bogy			100.00

COMMENTS:

1) The greater value in the panel is to be achieved by carefully controlling ordering quantities, investigating with our supplier each point of specification which causes increased cost, and taking such actions as are desirable and possible.

2) The present supplier has been requested to submit quotations based upon the finished part with the drilling and finishing operations complete, ready for use.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

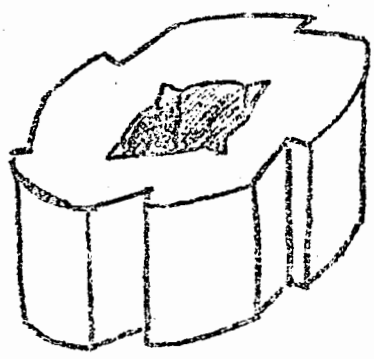
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Ratchet
9437268-1
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$1.97	$13.59	$91.71
Bogy			60.00

COMMENTS:

A number of suggestions were made to reduce the cost of this part.

1) Re-arrange the stop assembly thus permitting it to be made half thickness so that in the milling operations twice as many would result from each pass.

2) It was suggested that one set screw be substituted for the present two.

3) Further--the necessity for any set screws was questioned. Certain lower cost assemblies, especially laminated assemblies, could be much more simply produced without the set screw.

(Continued)

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Ratchet (Continued)

4) It was suggested that the part be made of laminations which are punch press parts.

5) It was suggested that even the present part could be made considerably thinner and it appears it would operate satisfactorily without further important changes.

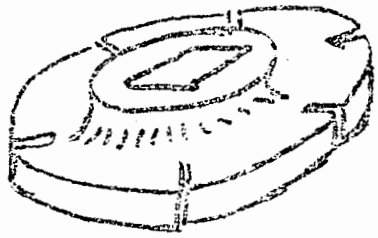
6) It was suggested that if a set screw is necessary, a collar be assembled between the two side laminations. The collar would be of small diameter and the laminations, of course, would contain the necessary notches.

7) The advisability of using a product from powdered metal is being checked.

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Cam
M-9437270-1
7 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$5.25		$6.09
Bogy			5.00

COMMENTS:

Suitable study of this part and its costs with the present supplier in conjunction with careful ordering, should result in a reduction of at least 1¢.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

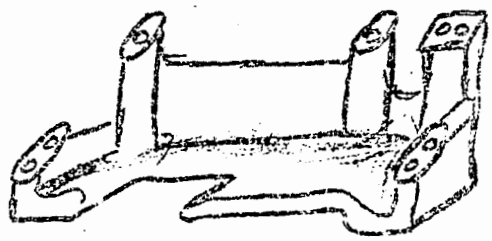
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Frame
9437325-1
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$338.58	$164.25	$1473.51
Bogy			1000.00



COMMENTS:

1) At $14, this frame is not considered to represent value. Numerous projects are under way which should provide a shop cost of the frame ready to use of not more than $10 each.

If the present program does not result in a cost not in excess of $10, we should all take a look at it and determine further economies.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

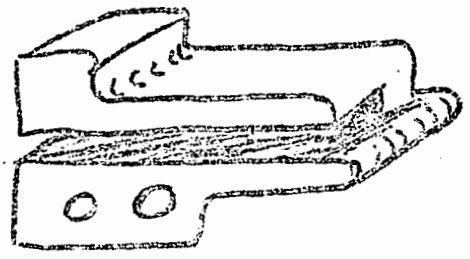
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Dial Contact Block
9437406-1
1 used per unit

	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$32.52	$4.45	$67.00
Bogy			50.00



COMMENTS:

1) To overcome some engineering and assembly difficulties, some changes are imminent. After these changes and with suitable purchase negotiations, the shop cost should not exceed 50¢ and may be considerably less.

2) New quotations are being obtained from present supplier.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

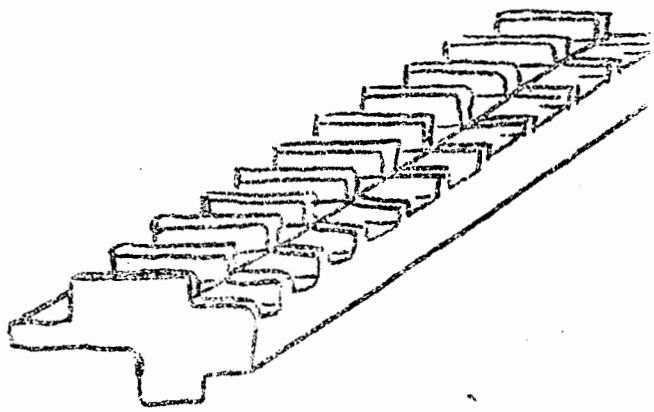
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Contact Block
9437428-1
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$66.95	$6.80	$122.41
Bogy			75.00

COMMENTS:

1) If the suggested beryllium copper type of contact is adopted, this contact block can be greatly simplified and should result in shop cost of not over 75¢.

2) If only minor changes are made, the plastic supplier will be requested to submit his quotation on the parts complet including the necessary drilling and tapping, ready for use.

3) Work should be done to eliminate the variations which make it necessary to machine the thickness of some of the contact blocks.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

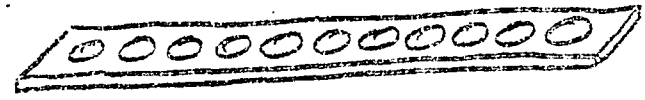
IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Bus Bar
9452445
1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present	$1.18	$1.31	$9.97

COMMENTS:

One supplier quotes the following prices on this part made from brass and not plated:

Lots	Cost
200	$7.40
500	6.00
1000	5.40

Tool Charge - $85

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

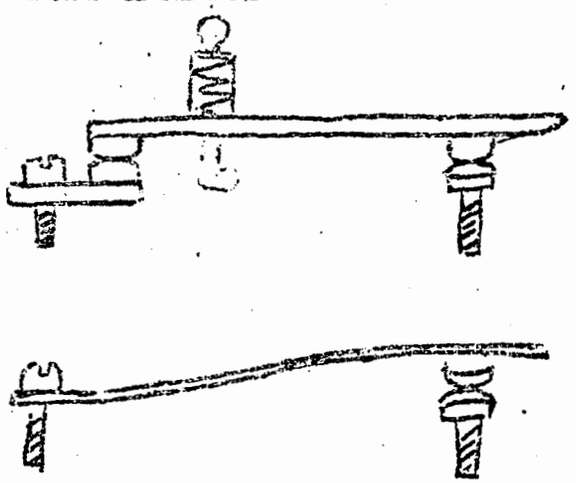
PURCHASING DEPARTMENT
Value Analysis Division

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Contact Arrangement--Lights

1 used per unit



	Cost/C		
	Mat'l	Labor	Shop Cost
Present			$451.64
Bogy		immediate	177.31
		ultimate	56.00

COMMENTS:

Several items were discussed; namely:

1) The present assembly provides about 5¢ worth of silver on the upper working tip and only half that much on the bottom. Discussion indicated that the top and the bottom eroded approximately equally equally. Accordingly, either more silver on the bottom for longer life or less silver on the top for equivalent life should be considered.

2) A very small amount of arcing occurs at the hinge end of the contact. However, 5¢ worth of silver is provided on each of the hinge block and the contact bar. If this construction is continued, it is suggested that about 1¢ worth of silver be provided on each of the hinge block and the hinge end of the contact bar instead of the preser total of 10¢ worth. This would provide equivalent life to the active end of the contact bar.

(continued)

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Contact Arrangement--Lights (Continued)

3) It was reported that on much of the production the lower contacts on the active end are connected below the panel by a solid bar. This means that dozens of small parts must be assembled. Operationally, the same results would accrue from a laminated silver bar along the top of the block. This bar could be fastened on in two or three places as desired. A sample bar is being provided to Mr. Lindsey for experiments, and cost information will be secured after his suggestions are received.

4) In present construction, the nine positions of the block which are usually unused are still provided with hinge blocks costing 15¢ each plus assembly, and contact screws costing approximately 5¢ each plus assembly. It was suggested for both manufacturing and commerical consideration that only the active positions be filled and that unused wires be taped or otherwise fastened to a suitable support

5) Due to two characteristics, beryllium copper may be especially suitable for this application. First, its conductivity is double that of phosphur bronze and second, after forming, it is heat-treated so that its shape then becomes exactly that of the form and the parts can be assembled and used without adjusting. Tests upon preliminary samples of such construction will be arranged by Mr. Lindsey. Representatives of the Instrument Specialties Company of Little Falls, New Jersey, (one company which could supply the completed contacts with silver assembled if desired) will call in Lynn upon invitation and discuss the engineering and other matters in detail with the appropriate people.

It was recognized that there are many important engineering and commercial angles in this assembly. However, the possibility of reducing the parts cost from $4.51 to 56¢ provides impetus for thorough investigation. Other economies would result from simplified construction. A less costly molded contact block could be used and certain operations which are now performed on the block after its purchase could be eliminated.

June 23, 1948

TRAFFIC CONTROLLER PARTS COST ANALYSIS

Name Plates (General)

COMMENTS:

1) Some economies could be effected by changing from etched to lithographed plates. It is believed that the difference will be imperceptible at a short distance. The name plate in the bottom of the box is not lithographed.

2) Due to excessive set up charges, ordering quantities should be reviewed carefully. $10 - $15 setup is charged regardless of quantity. It is suggested that, in the case of all the nameplates, orders be placed semi-annually to obtain reasonable prices. For example, costs of this part are as shown on the following page.

EXPECTED EFFECTIVE DATE:

RECORD OF ACTUAL COST DECREASES:

Date	New Shop Cost	Reduction

IF NOT ADOPTED - why and by whom found unsuitable.

PURCHASING DEPARTMENT
Value Analysis Division

Name Plates (Continued)

	Cost Now	Lots 100	Lots 200	Lots 500	Lots 1000
NP65932					
Etched	?	54.65	47.15	42.65	40.90
Litho.		37.65	30.15	25.65	23.85
NP130583					
Etched	23.92	46.50	39.00	34.50	32.75
Litho.		39.50	32.00	27.50	25.75
NP71063					
Etched	3.39	16.65	9.61	5.38	3.97
Litho.		16.30	9.26	5.03	3.65
NP30311					
Etched	4.09	16.99	9.47	4.99	3.24

ASSEMBLIES

Work has been in progress for some time now to have several of the assembly operations changed from a day work to piece work basis. Latest information is that most of this has been already accomplished or will be in the very near future. Below are listed a few of these assemblies showing the old day work charges along with estimated prices for a progressive and well-tooled piece work operation.

	Approximate Allotted Time (Each)		Shop Cost Per 100	
	DW	PW	DW	PW
8987719 GR-1 Panel Asm.	3.33 Hrs	2.5 Hrs	$200.00	$150.00
2TC22H1 Traffic Control				
Stamp N.P.	2.1 Min	.5 Min	13.70	3.30
Asm. Panel and N.P. to box	15.0 Min	8.0 Min	98.50	52.60
Asm. Timer to Box and test	2.06 Hrs	1.25 Hrs	812.00	493.00
2TTDH66A1 Timer Asm.				
Stamp N.P.	2.1 Min	.5 Min	13.70	3.30
Asm. Comp.	1.7 Hrs	1.33 Hrs	670.00	527.00
9437253 GR-1 Solenoid Asm	24.5 Min	16.5 Min	161.22	108.57
8979469 GR-1 Arm and Crank Asm.	5.2 Min	2.0 Min	34.90	13.16
9437252 GR-1 Motor and Plate Asm	3.5 Min	1.75 Min	23.10	11.55
8987554 GR-1 Flasher Asm	4.0 Min	3.00 Min	26.30	19.75
9437383 GR-2 Dial Block Asm	8.0 Min	3.50 Min	52.60	23.10

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3778618	Spring	32
3778832	Spring	30
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4865560-1	Hub	2
4865679-5	Motor	37
5550315	Arm	38
5550316	Dial Contact Block Rider	49
5550319	Arm	50
5550358	Stud	13
5550363	Arm	51
5550396	Mounting Screw	52
5550565	Bearing Block	26
5551200	Side Plate	53
5551255	Bracket	24
5551349	Hinge Pin	54
5551627	Knob	55
5551629	Spring Contact	56
5551630	Bar	57
5551631	Shaft	15
V-5552478	Hinge	22
8404556	Plate	39
V-8462616	Stud	16
8479415-1	Hinge	1
8479416	Latch	58
K-8479422	Cover	59
K-8479425	Drum Shaft	4
K-8479439	Hinge Pin	60
K-8479480	Collar	10
8479573	Wing Nut	40
8479872	Terminal Block	61
K-8479984	Block	62
8479988	Contact Screw	28
K-8978084-1	Shaft Nut	12
8978202	Flasher Cam	8
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